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PA-331

WATCH OUT FOR *Witchweed*



a new
parasitic plant
that attacks
corn
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PA-331

UNITED STATES DEPARTMENT OF AGRICULTURE

WATCH OUT FOR *Witchweed*

a new parasitic plant that attacks corn, sugarcane, sorghum, and other plants

Witchweed¹ is a parasitic plant that attacks corn, sugarcane, sorghum, many grasses, certain sedges, and some broadleaved plants.

The first time witchweed was recognized in the Western Hemisphere was when it was found in the Carolinas in 1956. Three years later, witchweed had been found on 3,927 farms in 21 counties of the 2 States—about 60,000 acres of cultivated land and 17,500 acres of noncultivated land. The parasite has been found in North Carolina in Columbus, Robeson, Scotland, Richmond, Hoke, Bladen, Pender, Duplin, Sampson, Cumberland, Harnett, Johnston, Lenoir, and Wayne Counties. In South Carolina it has been found in Horry, Marion, Dillon, Marlboro, Darlington, Williamsburg, and Florence Counties.

DAMAGE

Crop damage depends on the degree of infestation.

Corn yields in some infested fields in the Carolinas were complete failures each year since it was discovered. Witchweed was observed parasitizing crabgrass in fields of tobacco, peanuts, beans, peas, and sweetpotatoes.

Witchweed roots attach to and penetrate the roots of host plants. This reduces the efficiency of host plants in obtaining food and water.

Symptoms resemble those produced by acute drought. The plants become stunted, wilt, and turn yellowish. They die if they are heavily parasitized.

Roots of host plants appear to have masses of hairlike rootlets.

APPEARANCE

Witchweed plants above ground are small and bright green. The leaves are slightly hairy and the upper and lower leaf surfaces look alike.

The plants rarely grow more than 8 or 9 inches high. Some, however, may reach a height of 18 inches.

The flowers are small and usually brick red or scarlet, although some may be yellowish red, yellowish, or almost white.

HOW IT GROWS

The seeds, which are nearly microscopic, may lie dormant 15 to 20 years. They may be spread by wind, water, or anything that moves seed-infested soil. A witchweed plant can produce up to half a million seeds.

To germinate, a seed normally must be stimulated by secretions from roots of host plants.

When the witchweed seedling starts to grow, its roots must contact, attach to, and penetrate the roots of a host. Otherwise, it dies.

After its roots penetrate roots of a host, the witchweed depends on the host for food and water until it emerges from the soil.

The shoot emerges from the soil about 30 days after germination. After emergence, the plant turns green and manufactures its own food but continues to depend partially on the host for water and minerals.

Flowering begins about 30 days after the seedling emerges. The first flowers appear near the base of the plant. Seed pods burst about 4 weeks after flowers appear.

Seeds scatter over the soil for the next month or so. Flowering and seed production continue until cold weather.

The life cycle of the parasite—from germination to release of first seeds—takes 90 to 120 days.

Witchweed grows best in warm temperatures and on light soils containing considerable moisture. It will, however, grow under a wide range of soil, temperature, and moisture conditions.

¹ *Striga asiatica* (L.) Kuntze.

WITCHWEED



(A) corn plant
stunted by
witchweed

(B) general ap-
pearance of
the weed

(a) seed pods

(b) blossoms

(C) attachment
of weed root
(greatly mag-
nified)

The pencil is to
indicate actual
size of plant

CONTROL

Control witchweed by reducing the amount of witchweed seed in the soil. Stimulate germination of seed in the soil and destroy witchweed plants after they emerge from the soil but before they produce seed.

Witchweed on Cultivated Land

WHERE INFESTATIONS ARE LIMITED

To destroy witchweed in your fields where infestations are limited, plant corn to stimulate witchweed seed germination. After witchweed emerges from the soil and at or just before flowering, apply an amine salt of 2,4-D at $\frac{1}{2}$ to 1 pound acid equivalent per acre. Repeat the treatment at 3- or 4-week intervals or as often as needed to prevent flowering and seed production.

If crops susceptible to 2,4-D are nearby, destroy witchweed by spraying with DNBP. For each acre to be treated, use 2 pounds of DNBP mixed with 40 gallons of water or with an oil-water emulsion consisting of 10 gallons of diesel oil and 30 gallons of water.

WHERE INFESTATIONS ARE HEAVY AND GROWING CORN IS NO LONGER PROFITABLE

- Plant corn to stimulate witchweed seed germination and plow under or disk in the crop before witchweed plants mature.

- Follow with a second crop, such as

sorghum or millet. Plow this under after witchweed appears but before witchweed seeds mature.

- Late in the fall, plant a winter cover crop that will promote witchweed seed germination; a small grain, such as winter oats, is desirable for this purpose. Ordinarily, any witchweed that develops in this crop will be killed by frost before producing mature seed.
- Continue these practices until the soil is free of witchweed seeds.

Witchweed on Noncultivated Land

On noncultivated land, spray witchweed plants with a weedkiller before they produce seeds. Apply treatment as often as necessary during the growing season to kill all plants before seed production.

OTHER SUGGESTIONS

Crabgrass and other weed grasses are hosts for witchweed. All crops must be kept free of crabgrass. Cultivate or treat crops with an appropriate herbicide to kill crabgrass and other weed grasses.

Notify your county agricultural agent if you find witchweed or a plant that you think may be witchweed.

Do not move plants suspected of being witchweed—request an on-the-farm identification from your county agent.

Ask your county agent or State regulatory official to explain the cooperative State-Federal eradication program.

YOU CAN HELP PREVENT SPREAD OF WITCHWEED

This dangerous pest can spread by movement of infested soil, machinery, or transplant crops—even on shoes or in pants cuffs.

Do not move these things from infested to uninhabited places:

1. Witchweed plants or seeds;
2. Hay, nursery stock, bulbs, corms, tubers, rhizomes, or root crops such as carrots. Hay requires special attention because of the probability that infested host plants grow in hayfields;
3. Farm machinery, farm equipment, farm vehicles, or construction or road building equipment, unless thoroughly cleaned;
4. Used crates, boxes, bags, or other similar farm containers, unless thoroughly cleaned.

Avoid pasturing livestock on infested fields where possible.

Prepared by the Plant Pest Control Division and Crops Research Division
Agricultural Research Service, in cooperation with
North Carolina State College and Clemson Agricultural College, South Carolina